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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

GODDARD, BRIAN D

ART UNIT	PAPER NUMBER
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2171

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DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/811,008

Applicant(s)

ANWAR, MOHAMMED S.

Examiner

Brian Goddard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed April 4, 2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed.

All references cited on this information disclosure statement have been fully considered by the examiner, with the exception of the article entitled "A Study on Evaluation Methods of University Students" by Tanaka, M. No copy of this publication, or statement of its relevance, was included with the filing of this statement. Therefore, the examiner has not considered this reference.

Claim Objections

2. Claims 1, 5, 16-17 and 19-20 are objected to because of the following informalities:

The word "a" should be 'at' in the limitation "generating a least one related result to the query" in the fifth line of claim 1.

The word "keyword" should be pluralized to 'keywords' in the phrase "generating related keyword" in the third line of claim 5.

The word 'consisting' (or other appropriate terminology) should be inserted between "group" and "of" in the phrase "selected from the group of" in the first line of

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claim 17 to comply with current U.S. practice and the pattern set forth in the previous claims.

The word 'consisting' should also be inserted between "group" and "of" in the same phrase in the first and second lines of claim 20.

Finally, the Office objects to the use of the abbreviation DMR (for Data Mining Routine) in claims 16 and 19 without explicit definition of the abbreviation in the claim language. Thus, DMR must be explicitly defined within the claims, or the abbreviations must be removed entirely.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 16 and 19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The language of claim 16 implies that "the data mining library" includes each of the data mining routines listed, as well as "mixtures or combinations thereof". One of skill in the art would not be enabled to make such a library from the disclosure of the

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instant specification because a library, or grouping of objects, cannot contain "mixtures or combinations" of the objects as well of each of the objects individually.

Claim 19 states that "the DMR" (data mining routine by assumption of the examiner) "is a chi squared DMR, a correlation DMR, ... and mixtures and combinations thereof." One of skill in the art would not be enabled to make a data mining routine that "is" all of the data mining routines listed, as well as mixtures and combinations thereof. The specification provides no disclosure that would enable a person skilled in the art to make or use such a data mining routine.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 uses the language "and/or" in five separate instances (lines 3, 4, 6 [twice] and 7) throughout the claim. This language is indefinite because it is unclear whether all of the listed limitations must be present or only one. The use of the language "and/or" fails to properly set forth the metes and bounds of the claimed invention.

Claims 6, 7, 10-12, 15 and 18 also use the language "and/or" on multiple occasions within the claim limitations. Therefore, these claims are indefinite under the same reasoning as applied to claim 5.

Claims 6-9 are dependent upon claim 5, and are therefore indefinite for the same reason as claim 5. Claims 11-14 are dependent upon claim 10, and are therefore indefinite for the same reason as claim 10. Claims 16-17 are dependent upon claim 15, and are therefore indefinite for the same reason as claim 15. Finally, claims 19-20 are dependent upon claim 18, and are therefore indefinite for the same reason as claim 18.

In the interest of compact prosecution, the examiner interprets the claims as broadly as reasonably possible such that each use of the language "and/or" is interpreted as "or", the alternative. Thus, only one of the limitations encompassed by any "and/or" must be present.

Referring further to claim 16, it is unclear whether the data mining library must include all of the data mining routines listed, or just one or more (at least one) of them. The claim language is completely indefinite on this matter.

In the interest of compact prosecution, the examiner interprets the claim as broadly as reasonably possibly such that at least one of the data mining routines listed must be present in the data mining library, but not necessarily all of them.

Claim 19 recites the limitation "the DMR" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim. Because this limitation is the entire basis for the remainder of the claim limitation, the claim is rendered completely indefinite.

In the interest of compact prosecution, the examiner assumes that the intended limitation of claim 19 is that the library of data mining routines (from claim 18) includes

at least one data mining routine selected from the group consisting of "a chi squared DMR, a correlation DMR...[and] a cluster DMR."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,006,225 to Bowman et al. in view of U.S. Patent No. 5,692,107 to Simoudis et al.

Referring to claim 1, Bowman teaches a system and method for analyzing a query and generating related results as claimed. See Figures 1 & 5-9 and the corresponding portions of Bowman's specification for this disclosure. Refer specifically to Figures 7-9 and the corresponding portions of the specification for the disclosure of the claimed invention. In particular, Bowman teaches a method for analyzing a query and generating related results comprising:

determining [Step 710] a keyword ['term in the query'] associated with the query;
generating [Steps 720 – 770] at least one term ['the top X related terms'] related to at least one keyword;

supplying the keywords and terms to a search engine ['the corresponding modified query is submitted to the search engine' (Column 14, lines 1-12)]; and

generating at least one related result to the query ['identify a subset of query result items that include this related term' (Column 14, lines 25-45)].

Bowman does not explicitly disclose that the search engine includes "a data mining routine" to which the keywords and related terms are supplied as claimed. However, Bowman does disclose that "the catalog [database(s)] contains millions of items" and "it is important that the site provide an efficient mechanism for assisting users in locating items." (Column 4, lines 65-67) Furthermore, Bowman discloses the importance of discovering trends in the data and its usage. See column 7, line 60 – column 8, line 14 for this disclosure. These two points provide suggestion for using a data mining routine for locating trends and gathering other statistics about the data within the catalog database(s). Bowman also suggests that, "The search refinement methods of the invention may be implemented, for example, as part of...a document retrieval system, or any other type of computer system that provides searching capabilities to a community of users." (Column 4, lines 35-43) This provides direct motivation for combining Bowman's search refinement system with any type of search system, including data mining routines.

Simoudis discloses a data mining system and method for extracting patterns and relations from data stored in multiple databases to generate predictive models (trends). See Figures 1-3 and the corresponding portions of Simoudis' specification for this disclosure. Furthermore, Simoudis' data mining engine accepts query terms (keywords or other terms) as input for the data mining (Steps 210-214).

It would have been obvious to one of ordinary skill in the art at the time the invention was made incorporate Simoudis' data mining engine (of Fig. 1) into Bowman's Web Server (131) or Query Server (132) and to supply the keywords and related terms generated by Bowman's search refinement system to the data mining engine in order to generate trends and gather other statistics, from any type of searchable database(s) such as those of Simoudis (114) or Bowman (133), relating to those keywords and related terms. One would have been motivated to do so because of the suggestions provided by Bowman, as described above.

Referring to claim 2, the system and method of Bowman in view of Simoudis as applied to claim 1 above discloses the invention as claimed. See Figure 7 and the corresponding portion of Bowman's specification for this disclosure. Bowman v. Simoudis teaches the method of claim 1, as above, "wherein the determining step comprises polling [Steps 720-730] a database [Query Correlation Table 137] for terms related to at least one keyword" as claimed.

Referring to claim 3, the system and method of Bowman in view of Simoudis as applied to claim 1 above discloses the invention as claimed. See Figures 8 & 9 and the corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis teaches the method of claim 1, as above, "wherein the query [modified query] comprises a plurality of keywords [terms] and a plurality of generated terms [related terms (See column 3, lines 23-25 and column 13, lines 55-57)]" as claimed.

Referring to claim 4, the system and method of Bowman in view of Simoudis as applied to claim 1 above discloses the invention as claimed. See Figures 8 & 9 and the

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corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis teaches the method of claim 3, as above, further comprising: "selecting at least one generated term ['the user clicks on one of these links' (Column 14, line 6)]; and supplying the keywords and the selected terms ['the corresponding modified query is submitted' (Column 14, lines 6-7)] to the data mining routine [See the discussion regarding claim 1 above]" as claimed.

Referring to claim 5, the system and method of Bowman in view of Simoudis as discussed above with regard to claim 1 discloses the invention as claimed. See the discussions regarding claims 1-4 above for the details of this disclosure. Bowman v. Simoudis teaches "a method comprising the steps of:

constructing a query ['a user submits a query to the web site 130' (Bowman: Column 7, line 14 et seq.)] comprising keywords [terms] and constraints [See Figure 2: prefixes (title, author, subject, etc. - See column 6, lines 59-64) and match types (exact name, start of last name, exact title, etc.)];

generating [Bowman: Fig. 7] related keywords or related constraints;

supplying the keywords, the constraints, the related keywords or the related constraints to a data mining routine [See claim 1 above]; and

obtaining "as is" results [Bowman: 920] or information, related results [Bowman: 920 (See the corresponding portion of the specification and the discussion of claim 1 above)] or information and a question related to the query adapted to enhance query results [Bowman: 910] or information" as claimed.

Referring to claim 6, the system and method of Bowman in view of Simoudis as applied to claim 5 above discloses the invention as claimed. See Figures 8 & 9 and the corresponding portions of Bowman's specification for this disclosure. Bowman v. Simoudis teaches the method of claim 5, as above, "further comprising the steps of:

selecting the question ['the user clicks on one of these links' (Bowman: Column 14, line 6)]; and

obtaining "as is" results or information, related results of information and a sub-question related to the question adapted to enhance query results of information [query refinement process (iterative...user can repeat indefinitely) 'This process could be repeated using additional related terms...' (Bowman: Column 14, line 32 et seq.)]" as claimed.

Claims 7 and 8 are rejected on the same basis as claim 6. Bowman's query refinement process is iterative, meaning the process can be repeated as many times as desired to refine the query to the user's satisfaction. See column 14, line 32 et seq. of Bowman's specification for this disclosure. Thus, Bowman's method teaches repeating the steps of selecting a refinement [910] (question or sub-question) and obtaining the related results [920] until the user is satisfied with the results and chooses to stop the refinement process.

Referring to claim 9, the system and method of Bowman in view of Simoudis as applied to claim 5 above discloses the invention as claimed. See Figure 2 and the corresponding portion of Bowman's specification, and the discussion regarding claim 5 for the details of this disclosure. Bowman's query constraints include containment

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constraints (exact name, start of last name, exact title, etc.), grouping constraints (prefixes: title; author, subject, etc.), and/or data constraints (particular item genre out of the entire catalog – books in the example provided) as claimed.

Claim 10 is rejected on the same basis as claim 5, in light of the discussion regarding claim 1. See the discussions of claims 1 and 5 above for the details of this disclosure.

Claim 11 is rejected on the same basis as claim 6, in light of the basis for claim 10 above. See the discussions regarding claims 1, 5 and 6 for the details of this disclosure.

Claims 12 and 13 are rejected on the same basis as claims 7 and 8 respectively, in light of the basis for claim 10 above. See the discussions regarding claims 1, 5 and 6-8 for the details of this disclosure.

Claim 14 is rejected on the same basis as claim 9, in light of the basis for claim 10 above. See the discussions regarding claims 1, 5 and 9 for the details of this disclosure.

6. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowman in view of Simoudis as applied to claim 1 above, and further in view of U.S. Patent No. 6,266,668 to Vanderveldt et al.

Referring to claim 15, the system and method of Bowman in view of Simoudis as discussed above with regard to claim 1 discloses the invention as claimed. See Figure 1 and the corresponding portion of Bowman's specification, Figure 1 and the corresponding portion of Simoudis' specification, and the combination of these systems

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as applied in claim 1 above. In particular, the combination of Bowman and Simoudis teaches "a system comprising:

a remote digital processing unit [Bowman: User Computers 110] including an operating system, communication routines, and a user interface having a query construction routine [Bowman: Figure 2] and a results display routine [Bowman: Figure 9];

an application server [Bowman: Web Server 131 and Query Server 132] including an operating system, communication routines, and a query information retrieval content enhancing sub-system [Bowman: Related Term Selection Process 139 & Simoudis: Data Mining Engine of Figure 1 (See claim 1 above)] having a controller [Bowman: 132 & Simoudis: 106], a library of database interfaces [Simoudis: 112], a library of data mining routines [Simoudis: 104 & 104'], a DB middleware component [Simoudis: 105 & 105'] and a query/results database [Bowman: 137], where the subsystem generates related results or information and questions related to the query to enhance information retrieval from a query constructed at the remote digital processing unit [See the discussions regarding claims 1-14 above];

a database server [Simoudis: 106] including an operating system, communication routines, a database [Simoudis: 114] and database services [Simoudis: 112]; and

a network [Bowman: 120] interconnecting the remote digital processing unit, the application server and the database server [Bowman: See Figure 1] as claimed.

Neither Bowman nor Simoudis explicitly discloses an operating system and communication routines in each of the computer systems, as claimed. Furthermore, neither reference teaches "a user profiler" as claimed.

Vanderveldt discloses a data mining system and method similar to that of Simoudis. See Figures 1-3 and the corresponding portions of Vanderveldt's specification for this disclosure. In particular, Vanderveldt teaches the inclusion of operating systems and communications software (routines) in typical computer systems used to "execute the web pages". See column 9, lines 41-53 for this disclosure. Vanderveldt also discloses a user profiler ['neural network trained upon the user profile' (Column 4, lines 64-65)] for extracting information from user profiles to be used in the data mining.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include operating systems and communications software, such as those of Vanderveldt, into the computer systems of Bowman in view of Simoudis above. One would have been motivated to do so in order to execute the web-based functions of Bowman and Simoudis' methods, as deemed necessary by Vanderveldt's disclosure.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Vanderveldt's user profiler into the data mining subsystem of Bowman in view of Simoudis. One would have been motivated to do so because this would provide more effective results by including each individual user's

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search tendencies (represented by the profile) into the data mining routine as effectively as possible.

Referring to claim 16, the system and method of Bowman in view of Simoudis and Vanderveldt as applied to claim 15 above discloses the invention as claimed. See Figure 1 and the corresponding portion of Simoudis' specification for this disclosure. Simoudis' data mining library [104 & 104'], as included in the combined system, includes "a cluster DMR" (Clustering 104') as claimed.

Referring to claim 17, the system and method of Bowman in view of Simoudis and Vanderveldt as applied to claim 15 above discloses the invention as claimed. See Figures 1 & 4 and the corresponding portions of Simoudis' specification for this disclosure. Simoudis' databases (114) can include any type of database having an associated database management system (DBMS), including relational databases as disclosed in the example of Figure 4. See column 4, lines 26-34; column 5, lines 59-65; and claim 3 for this disclosure.

Claim 18 is rejected on the same basis as claim 15, in light of the discussions regarding claims 1 and 5 above. See the discussions regarding claims 1, 5 and 15 for the details of this disclosure.

Claims 19 and 20 are rejected on the same basis as claims 16 and 17 respectively, in light of the basis for claim 18 above. See the discussions regarding claims 1, 5 and 15-17 for the details of this disclosure.

Conclusion

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7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Nos. 6,144,958 to Ortega et al, 6,519,586 to Anick et al, 5,956,740 to Nosohara, and 5,963,940 to Liddy et al. are each considered particularly pertinent to applicant's claimed invention. Specifically, each discloses a system and method for generating related terms to refine a user query for submission to a search system.


The remaining prior art made of record is considered pertinent to applicant's disclosure, and/or portions of applicant's claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goddard whose telephone number is 703-305-7821. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

bdg
April 4, 2003


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